bl

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,568	02/27/2004	Shiau-Hc Shawn Tsai	4740-239	9113

24112 7590 09/10/2007

COATS & BENNETT, PLLC
1400 Crescent Green, Suite 300
Cary, NC 27518

EXAMINER	
YOUNG, JANELLE N	

ART UNIT	PAPER NUMBER
2618	

MAIL DATE	DELIVERY MODE
09/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/788,568	TSAI ET AL.
	Examiner	Art Unit
	Janelle N. Young	2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 25 June 2007.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-52 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-52 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 27 February 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed June 25, 2007 have been fully considered but they are not persuasive.

The Applicant argues that the mobile station transmits a pilot signal at a controlled transmit power to one or more remote transceivers. The claimed method further requires that the mobile station transmit one or more traffic channel signals at power gains related to the transmit power of the pilot signal, and adjust the power gains of the traffic channel signals responsive to reception quality feedback (e.g., good/bad reception indicators (ACK/NAK), quality bit indicators, erasure bit indicators, etc.) received at the mobile station from the remote transceiver(s). Kumar does not teach or suggest transmitting pilot signals at a controlled transmit power from the mobile station to one or more remote transceivers, as required by independent claims 1 and 14. However, Kumar et al. discloses a mobile transmitting a pilot strength measurement message to the new base station being added and repeating transmission of the pilot message (Col. 14, lines 12-31) .

The Applicant argues that Kumar describes has nothing to do with inter-relating the power gain of a traffic signal with the transmit power of a pilot signal, where both the traffic and pilot signals are transmitted in one direction, e.g., on the uplink as required by claims 1 and 14. However, Kumar et al. does transmit traffic and pilot channels on the reverse link (Col. 14, lines 12-31 in correspondence to Col. 15, lines 65-67)

The Applicant argues that Nobukiyo does not teach receiving quality feedback information at the mobile station or using quality feedback information to adjust a power gain of an uplink traffic signal relative to an uplink pilot signal transmit power. However Nobukiyo et al. discloses the mobile station measuring a reception quality of the pilot signal and reducing the power consumption and interference in the uplink (Abstract; Col. 2, lines 27-30 & 33-37; and Col. 9, lines 1-12)

Chaponniere describes a downlink power control solution concerned with controlling the relative power levels of supplemental and fundamental channels. Thus, while Kumar, Nobukiyo, and Chaponniere all generally relate to power control, these references are not concerned with the same power control problems, and further have unrelated solutions. The Applicant argues that one skilled in the art would not be motivated to combine these references. However, Chaponniere et al. discloses a reverse power control sub-channel which may be used to control gain levels (Col. 7, line 62-Col. 8, line 15)

The Applicant argues that there is no motivation to combine these references. First, as discussed above, there is no motivation to combine the downlink power control of Nobukiyo with the uplink power control of Kumar. Further, because Chaponniere also relates to downlink power control, there is similarly no motivation to combine Chaponniere with Kumar. However, Nobukiyo et al. and Chaponniere et al. along with Kumar et al. all discuss the uplink (reverse) power control in a communication system. In addition they all disclose a way to reduce/limit power and improve efficiency (Col. 1,

lines 62-67 of Kumar et al. with respect to Col. 1, line 62-Col. 2, line 3 of Nobukiyo et al and Col. 1, lines 45-54 of Chaponniere et al.)

Response to Amendment

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim rejected under 35 U.S.C. 102(b) as being anticipated by. Claims 1-6 and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al. (US Patent 6434367) and further in view of Nobukiyo et al. (US Patent 6993294).

As for claim 1, Kumar et al. teaches a method of reverse link power control at a mobile station (Col. 13, lines 3-13 of Kumar et al.), comprising:

transmitting a pilot signal at a controlled transmit power from the mobile station to one or more remote transceivers (Abstract; Col. 6, lines 28-46; and Col. 14, lines 10-31 of Kumar et al.);

transmitting one or more traffic channel signals from the mobile station at one or more power gains directly or indirectly relative to the transmit power of the pilot signal (Col. 15, line 65-Col. 16, line 2 of Kumar et al.); and

What Kumar et al. does not explicitly teach is a mobile station that receives reception quality feedback for a given one of the one or more traffic channel signals as

good and bad reception indicators that indicate good or bad reception by one or more network base stations.

However, Nobukiyo et al. discloses a mobile communication system includes a base station which is performed transmission control of data to the mobile station by using quality information (i.e.. feedback information) from mobile station (Fig. 1-4; Col. 2 lines 22-37; and Col. 11 lines 1-27 of Nobukiyo et al.), adjusting the power gain of one or more of the traffic channel signals responsive to reception section (Fig. 2:**22** and Col. 10, lines 1-25 of Nobukiyo et al.); which reads on claimed receiving reception, quality feedback from the one or more remote transceivers for the one or more traffic channel signals (Fig. 1-4 &11-12 and Col. 8 lines 4-17 & 36-54 of Nobukiyo et al.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for communication control to can reduce power consumption of the mobile station using uplink quality control channel (Col. 13, line 57-Col. 14, line 35 of Nobukiyo et al.) with the forward channel to controlling its power level for transmitting one or more reverse-link channels to the base station (Abstract of Kumar et al.) to reduce power consumption in the mobile station.

As for claim 2, Kumar et al. teaches a method of reverse link power control at a mobile station, wherein transmitting one or more traffic channel signals at one or more power gains relative to the transmit power of the pilot signal comprises transmitting a first traffic channel signal at a first power gain relative to the pilot signal, and transmitting a second traffic channel signal at a second power gain relative to the first traffic channel signal (Abstract; Col. 6, lines 28-46; and Col. 15, line 61-Col 17, line 8 of Kumar et al.).

As for claims 3-4, Kumar et al. teaches a method of reverse link power control at a mobile station, further comprising setting the second power gain responsive to receiving reception quality feedback for the second traffic channel signal such that the transmit power of the second traffic channel signal relative to the transmit power of the first traffic channel signal varies as a function of the reception quality feedback received by the mobile station for the second traffic channel signal and maintaining the first traffic channel at a fixed power gain relative to the pilot signal (Col. 8, lines 35-43; Col. 12, lines 34-42; and Col. 19, lines 1-18 in correspondence with Col. 16, lines 20-25 of Kumar et al.).

As for claim 5, Kumar et al. teaches a method of reverse link power control at a mobile station, wherein adjusting the power gain of one or more of the traffic channel signals responsive to receiving reception quality feedback from one or more remote transceivers for the one or more traffic channel signals comprises receiving reception quality feedback for at least one traffic channel signal and adjusting the power gain of that traffic channel signal relative to the transmit power of the pilot signal, or relative to a transmit power of another traffic channel signal that is transmitted with a power gain relative to the transmit power of the pilot signal (Col. 8, lines 35-43; Col. 12, lines 34-42; and Col. 19, lines 1-18 in correspondence with Col. 16, lines 20-25 of Kumar et al.).

As for claim 6, Kumar et al. teaches a method of reverse link power control at a mobile station, wherein transmitting a pilot signal at a controlled transmit power comprises adjusting a transmit power of the pilot signal responsive to power control commands received by the mobile station from one or more network base stations

(Abstract; Col. 1, lines 20-31; Col. 2, lines 18-26; Col. 3, line 53-Col. 4, line 3; Col. 6, lines 10-64; and Col. 15, line 61-Col. 16, line 25 of Kumar et al.).

Regarding claim 14, see explanation as set forth regarding claim 1 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

Regarding claim 15, see explanation as set forth regarding claim 2 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

Regarding claims 16-17, see explanation as set forth regarding claims 3-4 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

Regarding claim 18, see explanation as set forth regarding claim 5 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

Regarding claim 19, see explanation as set forth regarding claim 6 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

3. Claims 7-12 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over of Kumar et al. (US Patent 6434367) and Nobukiyo et al. (US Patent 6993294) as applied to claim 1 above, and further in view of Chaponniere et al. (US Patent 6937584).

As for claim 7, Kumar et al. teaches a method of reverse link power control at a mobile station, in which the frame error indications from all base station determined good frames received from other base stations (Col. 13, lines 3-13 of Kumar et al.).

What Kumar et al. and Nobukiyo et al. do not explicitly teach is a mobile station that receives reception quality feedback for a given one of the one or more traffic channel signals as good and bad reception indicators that indicate good or bad reception by one or more network base stations.

However Chaponniere et al. teaches a method of reverse link power control at a mobile station, wherein the mobile station receives reception quality feedback for a given one of the one or more traffic channel signals as good and bad reception indicators that indicate good or bad reception by one or more network base stations. (Col. 10, lines 5-18 in respect to Col. 8, lines 5-11; Col. 9, lines 52-56; and Col. 12, lines 11-16 of Chaponniere et al.).

It would have been obvious to one of ordinary skill of the art at the time the invention was made to incorporate a controlling gain level and power control scheme techniques, as taught by Chaponniere et al., in the power control planning of Kumar et al., because Kumar et al. already teaches a wireless communication system technique for transmitting power control signals; receiving & processing one or more reverse-link channels; and supplemental channel request (Col. 6, lines 27-64 and Col. 10, lines 50-57 of Kumar et al.). In addition, Nobukiyo et al. discloses another form of power control in a mobile communication system that includes a base station performing transmission control of data to the mobile station by using quality information (i.e.. feedback

information) from mobile station (Fig. 1-4; Col. 2 lines 22-37; and Col. 11 lines 1-27 of Nobukiyo et al.).

The motivation of this combination would be the effect of the reduction of power consumption and controlling the power level transmitted to the base station, as taught by Kumar et al., because it will cause an efficient use and possibly limited power available at the mobile and reducing the possibility of interference at the base stations with reverse-link signals transmitted from other mobile units. Chaponniere et al. teaches various power control schemes for controlling power levels of signals in communication system. Chaponniere et al. discusses controlling interference and maintaining an adequate system capacity that allows adequate reception at a receiving end. The power level may be based on the gain level of each communication channel through a power control scheme in the communication system (Col. 1, lines 34-54 of Chaponniere et al.). This incorporation would allow various schemes for the mobile station to determine whether to adjust the power level on forward traffic channel (Col. 5, lines 11-22 of Chaponniere et al.).

As for claim 8, Chaponniere et al. teaches a method of reverse link power control at a mobile station, wherein the mobile station adjusts the power gain of the given traffic channel signal by decreasing the power gain responsive to receiving one or more good reception indicators, and increases the power gain responsive to receiving one or more bad reception indicators (Abstract; Col. 1, line 60-Col. 2, line 12; Col. 6, lines 37-55 in correspondence to Col. 10, lines 5-18 in respect to Col. 8, lines 5-11; Col. 9, lines 52-56; and Col. 12, lines 11-16 of Chaponniere et al.).

As for claim 9, Kumar et al. teaches a method of reverse link power control at a mobile station, wherein the good and bad reception indicators comprise ACKs and NAKs, respectively, and wherein the mobile station adjusts the power gain of the given traffic channel signal by decreasing the power gain responsive to receiving one or more ACKs and increasing the power gain responsive to receiving one or more NAKs (Col. 5, lines 46-67 in respect to Col. 10, lines 50-57; Col. 11, lines 35-43; and Col. 11, line 57-Col. 12, line 3 of Kumar et al.).

As for claims 10-11, Kumar et al. teaches a method of reverse link power control at a mobile station, wherein the mobile station increases the power gain for the given traffic channel signal by a first step size responsive to receiving a NAK and/or decreases the power gain for the given traffic channel signal by a second, smaller step size responsive to receiving an ACK (Col. 5, lines 46-67 Col. 8, line 61-Col. 9, line 3 ; Col. 10, line 65-Col. 11, line 3; Col. 11, lines 19-34; Col. 12, lines 20-33; Col. 18, lines 3-12; and Col. 19, lines 1-17 in respect to Col. 10, lines 50-57; Col. 11, lines 35-43; and Col. 11, line 57-Col. 12, line 3 of Kumar et al.).

As for claim 12, Kumar et al. teaches a method of reverse link power control at a mobile station, further comprising calculating the second step size as a function of the first step size and a Frame Error Rate (FER) determined from the ACK/NAK feedback (Col. 13, lines 1-13 of Kumar et al.).

As for claim 13, Kumar et al. teaches a method of reverse link power control at a mobile station, wherein the reception quality feedback comprises one or more of ACK/NAK feedback, quality indication feedback, and erasure indication feedback (Col.

9, line 59-Col. 10, line 23; Col. 12, lines 20-42; Col. 13, lines 1-39; and Col. 19, lines 18-31 of Kumar et al.).

Regarding claim 20, see explanation as set forth regarding claim 8 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

As for claims 21-22, Kumar et al. teaches a mobile station, wherein the mobile station is configured to increase the power gain for the given traffic channel signal by a first step size responsive to receiving a bad reception indicator and/or to decrease the power gain for the given traffic channel signal by a second, smaller step size responsive to receiving a good reception indicator (Col. 5, lines 46-67 Col. 8, line 61-Col. 9, line 3 ; Col. 10, line 65-Col. 11, line 3; Col. 11, lines 19-34; Col. 12, lines 20-33; Col. 18, lines 3-12; and Col. 19, lines 1-17 in respect to Col. 10, lines 5-18 of Kumar et al.).

Regarding claim 23, see explanation as set forth regarding claim 12 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

Regarding claim 24, see explanation as set forth regarding claim 13 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

4. Claims 25-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over of Kumar et al. (US Patent 6434367) and Nobukiyo et al. (US Patent 6993294) as applied to claim 1 above, and further in view of Chaponniere et al. (US Patent 6937584).

As for claims 25-26, Kumar et al. teaches a method of data link power control at a communication transceiver, comprising:

controlling a transmit power of a signal transmitted by the communication transceiver responsive to one or more received power control commands and receiving reception quality information relating to a signal (Col. 8, lines 35-43; Col. 12, lines 34-42; and Col. 19, lines 1-17 of Kumar et al.).

What Kumar et al. and Nobukiyo et al. do not explicitly teach is adjusting the power gain.

However Chaponniere et al. teaches a method of setting and/or transmitting a signal at a power gain relative to the transmit power of the first signal and adjusting the power gain signal up and/or down as needed responsive to responsive to the reception quality feedback (Col. 5, line 59-Col. 6, line 4; Col. 7, lines 31-45; Col. 8, lines 16-43; and Col. 10, lines 5-18 of Chaponniere et al. in respect to Col. 1, lines 14-32).

What Kumar et al. and Nobukiyo et al. do not explicitly teach is a mobile station that receives reception quality feedback for a given one of the one or more traffic channel signals as good and bad reception indicators that indicate good or bad reception by one or more network base stations.

However Chaponniere et al. teaches a method of reverse link power control at a mobile station, wherein the mobile station receives reception quality feedback for a given one of the one or more traffic channel signals as good and bad reception indicators that indicate good or bad reception by one or more network base stations.

(Col. 10, lines 5-18 in respect to Col. 8, lines 5-11; Col. 9, lines 52-56; and Col. 12, lines 11-16 of Chaponniere et al.).

It would have been obvious to one of ordinary skill of the art at the time the invention was made to incorporate a controlling gain level and power control scheme techniques, as taught by Chaponniere et al., in the power control planning of Kumar et al., because Kumar et al. already teaches a wireless communication system technique for transmitting power control signals; receiving & processing one or more reverse-link channels; and supplemental channel request (Col. 6, lines 27-64 and Col. 10, lines 50-57 of Kumar et al.). In addition, Nobukiyo et al. discloses another form of power control in a mobile communication system that includes a base station performing transmission control of data to the mobile station by using quality information (i.e.. feedback information) from mobile station (Fig. 1-4; Col. 2 lines 22-37; and Col. 11 lines 1-27 of Nobukiyo et al.).

The motivation of this combination would be the effect of the reduction of power consumption and controlling the power level transmitted to the base station, as taught by Kumar et al., because it will cause an efficient use and possibly limited power available at the mobile and reducing the possibility of interference at the base stations with reverse-link signals transmitted from other mobile units. Chaponniere et al. teaches various power control schemes for controlling power levels of signals in communication system. Chaponniere et al. discusses controlling interference and maintaining an adequate system capacity that allows adequate reception at a receiving end. The power level may be based on the gain level of each communication channel through a power

control scheme in the communication system (Col. 1, lines 34-54 of Chaponniere et al.). This incorporation would allow various schemes for the mobile station to determine whether to adjust the power level on forward traffic channel (Col. 5, lines 11-22 of Chaponniere et al.).

As for claim 27, Kumar et al. teaches a method of data link power control at a communication transceiver, further comprising transmitting a third signal having a power gain relative to the transmit power of the first signal, and setting the power gain of the second signal relative to the third signal (Col. 2, lines 18-64 of Kumar et al.).

As for claim 28, Chaponniere et al. teaches a method of data link power control at a communication transceiver, wherein adjusting the power gain of the second signal responsive to the reception quality feedback comprises adjusting the power gain of the second signal relative to the first and third signals such that power ratios of the first and third signals to the second signal change as a function of reception quality feedback received for the second signal (Col. 5, lines 45-58; Col. 6, lines 26-36; and Col. 10, lines 5-51 in respect to Col. 2, lines 18-64 of Chaponniere et al.).

As for claim 29, Kumar et al. teaches a method of data link power control at a communication transceiver, further comprising adjusting an inner-loop power control target of the first signal based on a received signal quality of the third signal (Col. 8, lines 35-43 and Col. 15, lines 30-53 of Kumar et al.).

As for claim 30, Chaponniere et al. teaches a method of data link power control at a communication transceiver, wherein the first signal comprises a pilot signal, and the second and third signals comprise first and second traffic channels, respectively (Col. 4,

line 36-Col. 5, line 17; Col. 6, lines 5-16; and Col. 7, line 62-Col. 8, line 43 of Chaponniere et al.).

As for claim 31, Chaponniere et al. teaches a method of data link power control at a communication transceiver, wherein controlling a transmit power of a first signal transmitted by the communication transceiver responsive to received power control commands comprises transmitting a pilot signal and adjusting the transmit power of the pilot signal responsive to the received power control commands, and wherein transmitting a second signal at an adjustable transmit power having a power gain relative to the transmit power of the first signal comprises transmitting a data signal at a transmit power determined by the transmit power of the pilot signal and the power gain (Col. 3, line 56-Col. 4, line 4 corresponding with Col. 1, lines 33-54 and Col. 7, line 62-Col. 8, line 60 of Chaponniere et al.).

As for claim 32, Chaponniere et al. teaches a method of data link power control at a communication transceiver, wherein receiving reception quality feedback relating to the second signal comprises receiving good and bad reception indicators that indicate whether a remote transceiver correctly received data carried by the data signal (Col. 9, line 66-Col. 10, line 31 of Chaponniere et al.).

As for claim 33, Kumar et al. teaches a method of data link power control at a communication transceiver, wherein receiving good and bad reception indicators that indicate whether a remote transceiver correctly received data carried by the data signal comprises receiving ACK/NAK indications from the remote transceiver for each frame of the data signal, and wherein adjusting the power gain of the second signal relative to

the first signal responsive to the reception quality feedback comprises increasing the power gain by a first amount responsive to receiving a NAK and decreasing the power gain by a second amount responsive to receiving an ACK (Col. 5, lines 45-67; Col. 8, line 61-Col. 9, line 3; Col. 10, lines 50-58; Col. 11, lines 35-44; Col. 11, line 57-Col. 12, line 3; and Col. 13, lines 1-13 in respect to Col. 1, lines 33-56; Col. 2, lines 18-26 & 44-54; and Col. 3, lines 26-37 of Kumar et al.).

As for claim 34, Kumar et al. teaches a method of data link power control at a communication transceiver, wherein the communication transceiver comprises a mobile station, the first signal comprises a pilot signal, and the second signal comprises a traffic channel signal, and wherein controlling a transmit power of a first signal transmitted by the communication receiver responsive to received power control commands comprises controlling the transmit power of the pilot signal responsive to power control commands transmitted to the mobile station by one or more network base stations.

As for claim 37, Kumar et al. teaches a method of data link power control at a communication transceiver, wherein the communication transceiver comprises a network base station in a wireless communication network (Col. 6, lines 47-64 of Kumar et al.).

Regarding claim 38, see explanation as set forth regarding claim 13 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

5. Claims 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over of Kumar et al. (US Patent 6434367), Nobukiyo et al. (US Patent 6993294), and further in view of Chaponniere et al. (US Patent 6937584) as applied to claim 34 above, and further in view of Parkvall et al. (US Patent 2002/0080719).

As for claim 35, Kumar et al. and Chaponniere et al. teach a method of data link power control at a communication transceiver (Col. 6, lines 47-64 of Kumar et al.), wherein transmitting a second signal at a controlled power gain relative to the first signal (Col. 1, lines 34-54 of Chaponniere et al.).

What Kumar et al., Nobukiyo et al., and Chaponniere et al. do not explicitly teach are network base stations on a per frame basis.

However Parkvall et al. a method of data link power control at a communication transceiver, comprises of transmitting data frames on the traffic channel signal wherein receiving reception quality feedback relating to the second signal comprises receiving reception quality feedback from one or more network base stations on a per frame basis (Page 5, Para 0046-0047 of Parkvall et al.).

It would have been obvious to one of ordinary skill of the art at the time the invention was made to incorporate a scheduling transmission of data over a transmission channel based on signal quality of a receive channel technique, as taught by Parkvall et al., in the power control sub-channel to control reverse-link channel power planning of Kumar et al. and Chaponniere et al., because Kumar et al. and Chaponniere et al. already teach a wireless communication system technique for transmitting power

control, traffic, and data signals/channels (Page 3, Para 0021 and Page 4, Para 0039 of Parkvall et al.).

The motivation of this combination would be the effect of the power control technique enabling the mobile to transmit at a minimal acceptable power level in order to control interference and maintain an adequate system capacity and communications maintain, as taught by Kumar et al. and Chaponniere et al., because it will help regulate the transmit power levels. This incorporation would cause a more reliable and efficient data delivery in a communications system (Page 1, Para 0001 of Parkvall et al.).

Regarding claim 36, see explanation as set forth regarding claims 9-11 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

6. Claims 39-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over of Kumar et al. (US Patent 6434367) and Nobukiyo et al. (US Patent 6993294) as applied to claim 1 above, and further in view of Chaponniere et al. (US Patent 6937584).

As for claim 39, Kumar et al. teaches a communication transceiver, comprising:

transceiver circuits to transmit and receive signals to and from one or more remote transceivers; and one or more processing circuits operatively associated with the transceiver circuits, said one or more processing circuits including a power control circuit configured to: control a transmit power of a first signal transmitted by the communication transceiver responsive to power control

commands received by the communication transceiver. (Col. 6, lines 28-64 of Kumar et al.)

What Kumar et al. and Nobukiyo et al. do not explicitly teach is adjusting the power gain.

However Chaponniere et al. teaches a communication transceiver including a power control circuit configured to adjust the power gain of the second signal responsive to the reception quality feedback received by the communication transceiver for the second signal and control a power gain of a second signal transmitted by the communication transceiver directly or indirectly relative to the transmit power of the first signal (Col. 5, line 59-Col. 6, line 4; Col. 7, lines 31-45; Col. 8, lines 16-43; and Col. 10, lines 5-18 of Chaponniere et al. in respect to Col. 1, lines 14-32).

It would have been obvious to one of ordinary skill of the art at the time the invention was made to incorporate a controlling/adjusting gain level and power control scheme of a supplemental channel techniques, as taught by Chaponniere et al., in the power control sub-channel to control reverse-link channel power planning of Kumar et al., because Kumar et al. already teaches a wireless communication system technique for transmitting power control signals; receiving & processing one or more reverse-link channels; and supplemental channel request (Col. 6, lines 27-64 and Col. 10, lines 50-57 of Kumar et al.).

What Kumar et al. and Nobukiyo et al. do not explicitly teach is a mobile station that receives reception quality feedback for a given one of the one or more traffic

channel signals as good and bad reception indicators that indicate good or bad reception by one or more network base stations.

However Chaponniere et al. teaches a method of reverse link power control at a mobile station, wherein the mobile station receives reception quality feedback for a given one of the one or more traffic channel signals as good and bad reception indicators that indicate good or bad reception by one or more network base stations. (Col. 10, lines 5-18 in respect to Col. 8, lines 5-11; Col. 9, lines 52-56; and Col. 12, lines 11-16 of Chaponniere et al.).

It would have been obvious to one of ordinary skill of the art at the time the invention was made to incorporate a controlling gain level and power control scheme techniques, as taught by Chaponniere et al., in the power control planning of Kumar et al., because Kumar et al. already teaches a wireless communication system technique for transmitting power control signals; receiving & processing one or more reverse-link channels; and supplemental channel request (Col. 6, lines 27-64 and Col. 10, lines 50-57 of Kumar et al.). In addition, Nobukiyo et al. discloses another form of power control in a mobile communication system that includes a base station performing transmission control of data to the mobile station by using quality information (i.e.. feedback information) from mobile station (Fig. 1-4; Col. 2 lines 22-37; and Col. 11 lines 1-27 of Nobukiyo et al.).

The motivation of this combination would be the effect of the reduction of power consumption and controlling the power level transmitted to the base station, as taught by Kumar et al., because it will cause an efficient use and possibly limited power

available at the mobile and reducing the possibility of interference at the base stations with reverse-link signals transmitted from other mobile units. Chaponniere et al. teaches various power control schemes for controlling power levels of signals in communication system. Chaponniere et al. discusses controlling interference and maintaining an adequate system capacity that allows adequate reception at a receiving end. The power level may be based on the gain level of each communication channel through a power control scheme in the communication system (Col. 1, lines 34-54 of Chaponniere et al.). This incorporation would allow various schemes for the mobile station to determine whether to adjust the power level on forward traffic channel (Col. 5, lines 11-22 of Chaponniere et al.).

Regarding claim 40, see explanation as set forth regarding claim 27 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

Regarding claim 41, see explanation as set forth regarding claim 28 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

Regarding claim 42, see explanation as set forth regarding claim 29 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

Regarding claim 43, see explanation as set forth regarding claim 30 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

Regarding claims 44-45, see explanation as set forth regarding claim 31 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

Regarding claim 46, see explanation as set forth regarding claim 32 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

Regarding claim 47, see explanation as set forth regarding claims 20-22 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

Regarding claim 48, see explanation as set forth regarding claim 13 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

As for claim 49, Chaponniere et al. teaches a communication transceiver, wherein the communication transceiver comprises a mobile station, and wherein the first signal comprises a pilot signal and the second signal comprises a traffic channel signal (Col. 4, line 36-Col. 5, line 17; Col. 6, lines 5-16; and Col. 7, line 62-Col. 8, line 43 of Chaponniere et al.).

7. Claims 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over of Kumar et al. (US Patent 6434367), Nobukiyo et al. (US Patent 6993294), and further in view of Chaponniere et al. (US Patent 6937584) as applied to claims 39 & 49 above, and further in view of Parkvall et al. (US Patent 2002/0080719).

As for claim 50, Kumar et al. and Chaponniere et al. teach a communication transceiver (Col. 6, lines 47-64 of Kumar et al.), wherein transmitting a second signal at a controlled power gain relative to the first signal (Col. 1, lines 34-54 of Chaponniere et al.).

What Kumar et al., Nobukiyo et al. (US Patent 6993294), and Chaponniere et al. do not explicitly teach are network base stations on a per frame basis.

However Parkvall et al. a communication transceiver, comprises of transmitting data frames on the traffic channel signal wherein receiving reception quality feedback relating to the second signal comprises receiving reception quality feedback from one or more network base stations on a per frame basis (Page 5, Para 0046-0047 of Parkvall et al.).

It would have been obvious to one of ordinary skill of the art at the time the invention was made to incorporate a scheduling transmission of data over a transmission channel based on signal quality of a receive channel technique, as taught by Parkvall et al., in the power control sub-channel to control reverse-link channel power planning of Kumar et al. and Chaponniere et al., because Kumar et al. and Chaponniere et al. already teach a wireless communication system technique for transmitting power control, traffic, and data signals/channels (Page 3, Para 0021 and Page 4, Para 0039 of Parkvall et al.).

The motivation of this combination would be the effect of the power control technique enabling the mobile to transmit at a minimal acceptable power level in order to control interference and maintain an adequate system capacity and communications

maintain, as taught by Kumar et al. and Chaponniere et al., because it will help regulate the transmit power levels. This incorporation would cause a more reliable and efficient data delivery in a communications system (Page 1, Para 0001 of Parkvall et al.).

As for claim 51, Parkvall et al. teaches a communication transceiver, the reception quality feedback comprises ACK/NAK feedback, and wherein the power control circuit is configured to increase the power gain of the traffic channel signal relative to the pilot signal by retransmitting a data frame for which a NAK was received by the mobile station according to a desired retry protocol, and increasing the power gain if the retransmission is unsuccessful (Page 2, Para 0011 & 0015; Page 3, Para 0021; Page 4, Para 0041; Page 6, Para 0056-0057 in respect to Page 1, Para 0004-0005 & 0009 and Page 5, Para 0045 & 0057 of Parkvall et al.).

Regarding claim 52, see explanation as set forth regarding claim 36 (method claim) because the claimed mobile station for reverse link power control would perform the method steps.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle N. Young whose telephone number is (571) 272-2836. The examiner can normally be reached on Monday through Friday: 8:30 am through 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JNY
August 31, 2007

NAY MAUNG
SUPERVISORY PATENT EXAMINER